SIEMENS

Siemens Remote Services

[redacted] CO

Hardware Installation Guide

RDIAG Router 1603 ISDN

Partnumber 73 82 802

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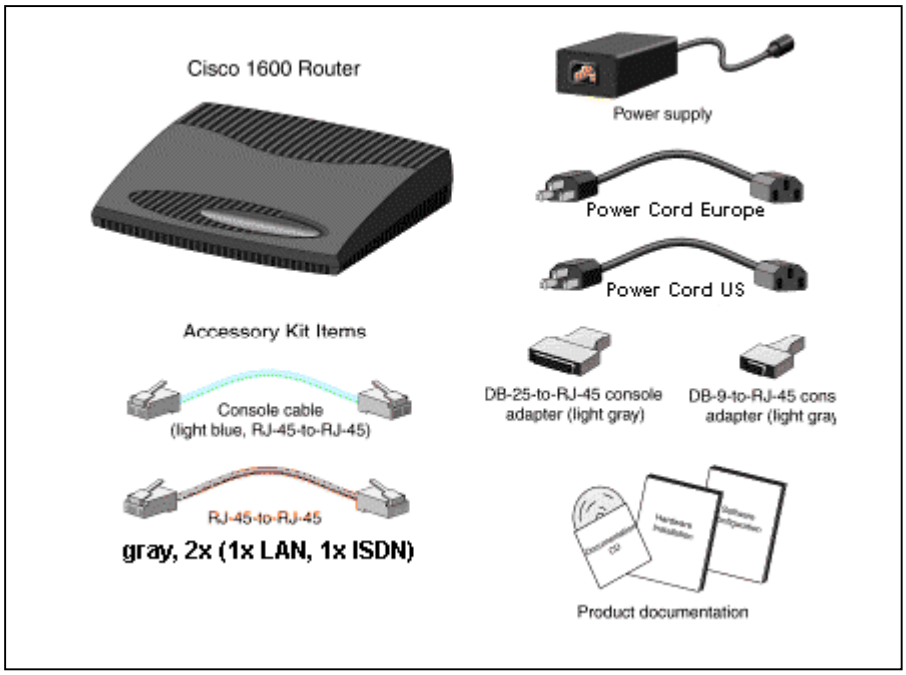
1. Unpack the Box



2. Before Installation

Cisco 1600 series routers are shipped to you ready for desktop mounting. Before connecting the router to the network and power supply, simply set the router on a desktop, shelf, or other flat surface. The router you got is preconfigured by SIEMENS Medical Solutions. The router package includes power cords for the US and Europe. You need to provide a power cord for other countries. Pay attention to the Maximum Cable Lengths (see Appendix E).

ISDN BRI Line Configuration Requirements
Before using a Cisco 1600 series router with an ISDN BRI you must order a correctly configured ISDN BRI line from your local telecommunications service provider.
This process varies significantly from provider to provider on a national and international basis. However, following are some general guidelines:

- Ask for two channels to be called by one number.
- Ask for delivery of calling line identification. This is also known as *Caller ID* or *Automatic Number Identification* (ANI).
- Ask for a point-to-multipoint service **data** line (subaddressing is required).
- Ask for a Network Terminator (NT). You need an ISDN BRI **S/T** line.

ISDN on an internal PABX (Private Automatic Branch eXchange) is not recommended. Also refer to the SRS Planning Guide. If you are familiar with the hardware installation and the configuration connection to your PC, go to chapter 8.

For the configuration of the router you will have to know what the following paramters of your ISDN connection are:

- The **ISDN switch type** and in some cases
- The **spid numbers**

Your ISDN service provider will be able to tell you what these parameters are.

3. Connecting Power and Turning the Router On

You can verify your installation by checking the appropriate LEDs during the installation process if you switch the router on before making any network connections.

Follow these steps to connect the router to the power supply and turn it on:

Step 1 Connect the DC power cable (included with the router) from the power supply to the DC power input on the rear panel of the router. (Figure 1)
Step 2 Connect the female end of the cable to the male receptacle of the power supply.
Step 3 Connect the male end of the power cable to the power outlet.
Step 4 On the rear panel of the router, turn the power ON by setting the switch labeled I / O to the I position.
Step 5 Slip the wire clip over the power cord to ensure that the power cord remains attached to the router, as shown in Figure 1
Step 6 Check the following LEDs:

- The SYSTEM PWR LED (front panel)---On if power is being supplied to router.
- The SYSTEM OK LED (front panel)---On while router software is operational. (This LED first blinks and then remains on continuously.)
- The OK LED (rear panel, next to Flash PC card slot)---On if the Flash memory card is installed correctly.

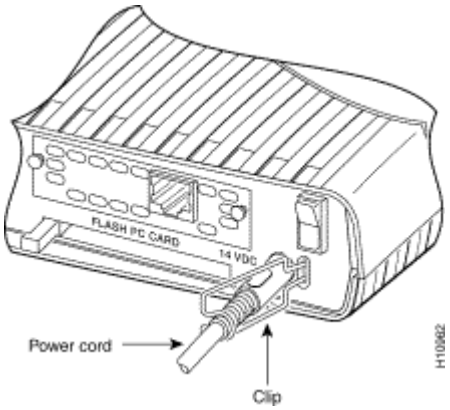


Figure 1

4. Connecting Cisco 1603 to the LAN

One of the gray straight-through RJ-45-to-RJ-45 cables (contained in the package – do not use a cable with the label „CAB-U-RJ45“) is necessary for this connection. Follow these steps to connect the router to a 10BaseT Ethernet LAN (Figure 2):

Step 1 Connect one end of the Ethernet cable to the 10BASE T port.
Step 2 Connect the other end of the cable to one of the ports on the 10BaseT hub, switch or network walljack.
Step 3 Check the following LEDs:

- LNK LED (rear panel, next to 10BaseT port)---On if the router is connected correctly to the 10BaseT Ethernet LAN.
- LAN ACT LED (front panel)---On while there is traffic on the Ethernet LAN.

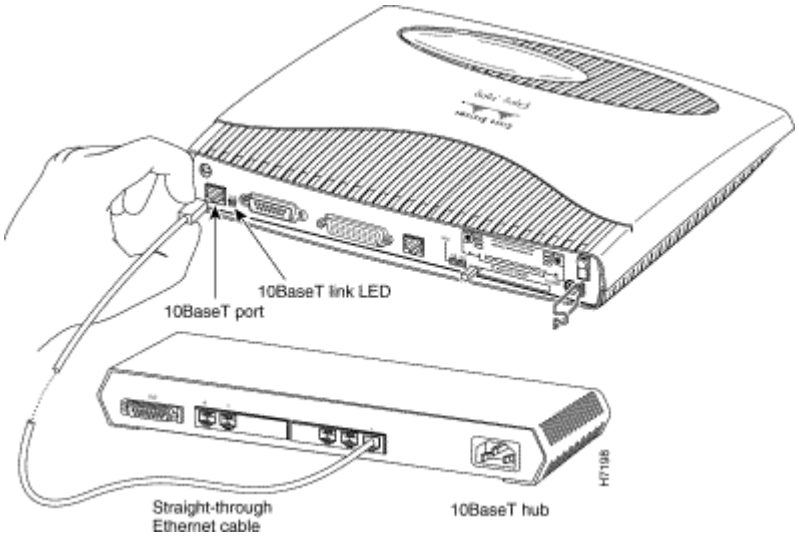


Figure 2

Note: If you want to connect the router directly to a PC, Server, Workstation you will need a cross over RJ-45-to-RJ-45 cable (*not included in the package)*.

5. Connecting Cisco 1603 to the WAN / ISDN

The ISDN Service Provider must provide a Network Termination 1 (NT1) device. An ISDN BRI S/T line from your Service Provider is necessary. Use the second gray straight-through RJ-45-to-RJ-45 cable for this connection (contained in the package – do not use a cable with the label „CAB-U-RJ45“).

Depending on where the Cisco 1603 is used, the ISDN BRI connection may be different. Follow these steps to connect the Cisco 1603 to the WAN:

Step 1 Use the gray RJ-45-to-RJ-45 cable and connect one end of the cable to the ISDN S/T port of the router.

Step 2 Connect the other end of the cable to the NT1 (Figure 3). *Do not connect ISDN equipment other than the preconfigured router to the same ISDN line (S_0 Bus).*

Step 3 Check the following LEDs:

- The OK LED on the rear panel (next to ISDN S/T port) lights up once the router has synchronized with the central office switch, or once the router has established a first outside connection.
- The external NT1 might have a LED indicating synchronization with the central office switch or other NT1 status. Check the NT1 documentation.

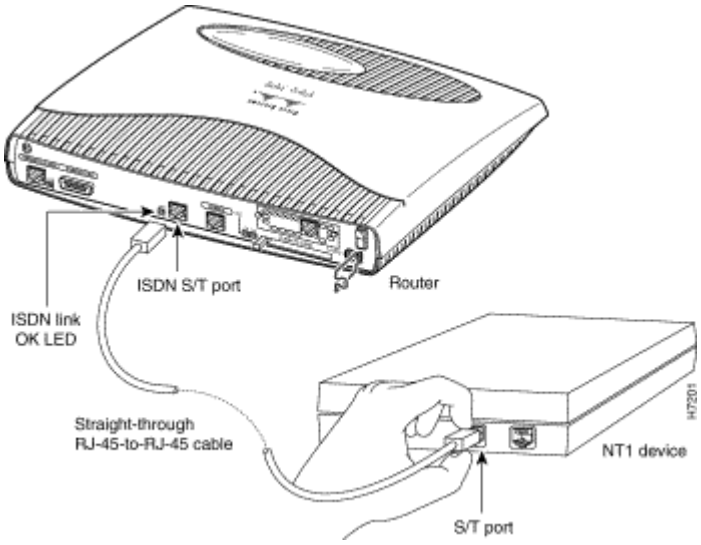


Figure 3

6. Connecting the Console Port

The cable and adapters required for this connection are included in the package. Follow these steps to connect the router to a terminal or PC:

Step 1 Connect one end of the light-blue console cable to the light-blue CONSOLE port of the router (Figure 4).

Step 2 Use the correct adapter to connect the other end of the cable to your terminal or PC (serial interface).

Note If your terminal or PC has a console port that does not match any of the adapters, you must provide the correct adapter for that port.

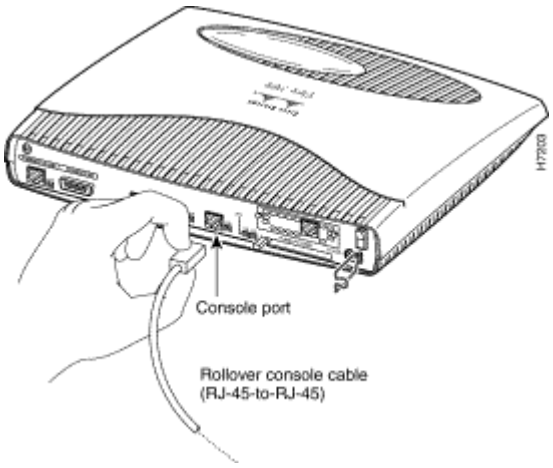


Figure 4

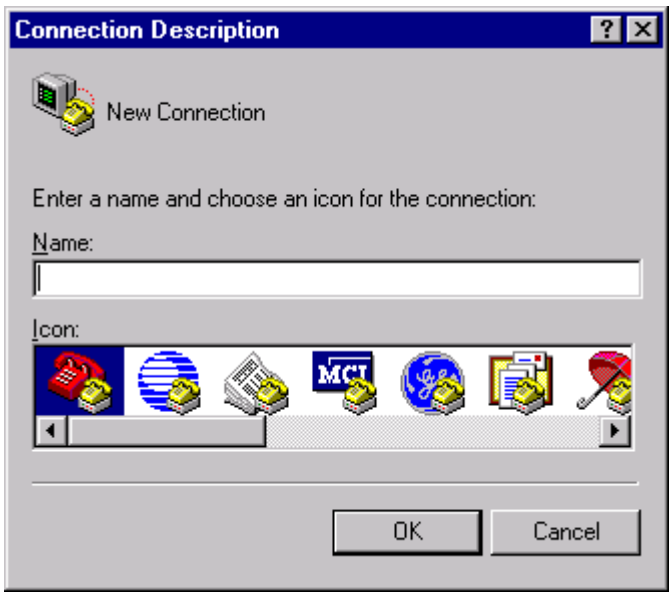
7. Configure PC (e.g. Hyperterminal) for communication

Once your router is correctly connected to your PC, you can start building your configuration. The Windows Hyperterminal emulation is the interface to your Cisco 1603 router.

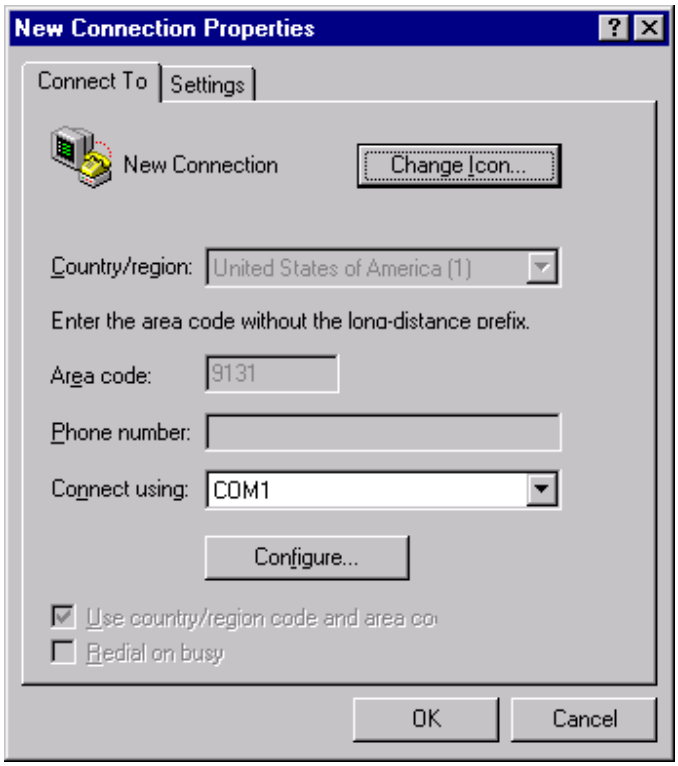
Step 1 Start Hyperterminal from the „Programs – Accessories – Hyperterminal“ menu in the start panel. If you do not find the program there or anywhere else on your computer, you will have to install it first.

Step 2 In the „Connection Description“ dialogue box

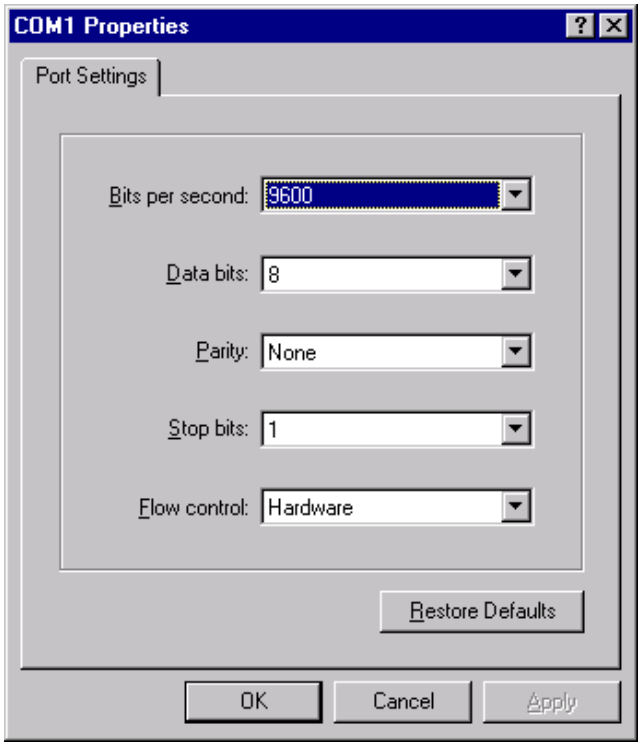
- enter a name for the connection and choose an icon. If you want to save the connection settings, click „OK“
- *or* click „Cancel“



Step 3 Choose „Properties“ from the „File“ menu. On the „Connect to“ tab, check, if the port to which your router is connected (e.g. COM1) is selected.



Step 4 Click „Configure“ and make sure that the settings have the following values: Bits per second: 9600, Data bits: 8, Stop bits: 1, Flow control: Hardware. Click „OK“ twice to leave configuration mode.



Step 5 Choose „Connect“ from the „Call“ menu to establish a connection to the router.

8. Configuring Global Parameters

The preconfigured router uses the ISDN switch type EURO-ISDN (basic-net3) for Europe. The following steps are necessary *only* if you use another ISDN switch type. Ask your ISDN service provider.

Use the table below to configure some global parameters of the router, including the ISDN switch type the router is connected to by the ISDN line. The switch type also needs to be set for the specific interface, e.g. the BRI 0. The router's name (in front of the prompt), should be a combination of serial number and part number (e.g. jac0356823Qc810).

	Description	Prompt	Command
Step 1	Enter enable mode	JAC0356323Qc802>	**enable** Password: **presec**
Step 2	Enter configuration mode.	JAC0356323Qc802#	**configure terminal**
Step 3	Configure the type of central office switch being used on the ISDN interface. Use the keyword that matches the ISDN switch type that you are using. The PRECONFIGURED router is configured for **basic-net3.** Ask your isdn service provider	JAC0356323Qc802 (config)#	**isdn switch-type** <switch type code> – *[refer to* Appendix C*]*
Step 4	Enter interface BRI mode	JAC0356323Qc802 (config)#	**interface bri 0**
Step 5	Configure the type of central office switch being used on the BRI 0 interface. Use the keyword that matches the ISDN switch type that you are using.	JAC0356323Qc810 (config-if)#	**isdn switch-type** <switch type code> – *[refer to* Appendix C*]*
Step 6	Configure SPID only for switch **basic-5ess, basic-dms100, basic-ni1.** Ask your isdn service provider.	JAC0356323Qc802 (config-if)#	**isdn spid1** <spid-number> **isdn spid2** <spid-number> *[refer to* Appendix D*]*
Step 7	Go back to config mode	JAC0356323Qc802 (config-if)#	**exit**
Step 8	Go back to enable mode	JAC0356323Qc802 (config)#	**exit**
Step 9	Save the configuration in the router's memory	JAC0356323Qc802#	**write memory**
Step 10	Display the saved configuration parameters	JAC0356323Qc802#	**show conf**

Note: The router is not preconfigured by SIEMENS Medical Solutions if the prompt says „Router"!

9. Final Configuration – performed by SIEMENS Remote Services

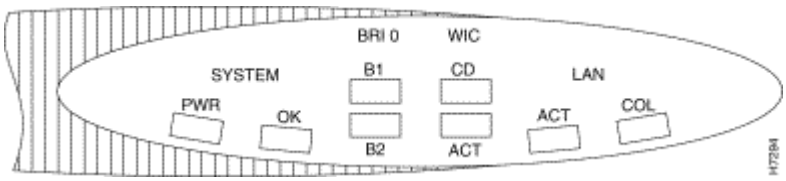
The router hardware configuration is finished. The final configuration will be carried out by SIEMENS Remote Services. This service is free-of-charge. **DO NOT** start to configure the router by yourself**!**
In order to use the central service of remote final configuration, fill out the checklist which can be found either in the router box or in the internet at the following address:
http://www-td.med.siemens.de/router/checklist.doc

It is important that you do not undertake any additional configurations on your own since the configuration needs to comply with certain standards in order for the router to function properly.

The final configuration includes registering the medical systems by the remote diagnostic server at SIEMENS Remote Services.

10. Appendix

Appendix A) Front Panel LEDs



LED	Color	Description
SYSTEM PWR	Green	The router is turned on, and DC power is being supplied.
SYSTEM OK	Green	The router has successfully booted. Blinks during the boot cycle.
LAN ACT	Green	Data is being sent to or received from the local Ethernet LAN.
LAN COL	Yellow	Flashing indicates packet collisions on the local Ethernet LAN.
BRI 0 B1	Green	An ISDN connection on B-channel 1.Cisco 1604 only---If an ISDN device connected to the ISDN S/T port is using B-channel 1, the LED turns on.
BRI 0 B2	Green	An ISDN connection on B-channel 2.Cisco 1604 only---If an ISDN device connected to the ISDN S/T port is using B-channel 2, the LED turns on.
WIC CD	Green	Active connection on the WAN interface card serial port.
WIC ACT	Green	Data is being sent over the WAN interface card serial port.

Appendix B) Rear Panel LEDs

LED	Color	Description
LNK(next to ETHERNETØ 10BASET)	Green	Indicates 10BaseT link integrity. This LED is not on when connected to an Ethernet network through the AUI port. The Cisco 1605 has two LNK LEDs, one for each Ethernet 10BaseT port.
OK (next to FLASH PC CARD slot)	Green	The Flash PC card is correctly installed.
OK (next to ISDN BRIØ S/T port)	Green	A physical connection has been established with the ISDN central office switch.

Appendix C) ISDN BRI Switch Types

ISDN BRI supports a variety of service provider switches. The following table lists, by geographic areas, the ISDN switch types supported by the Cisco 1600 series routers ISDN BRI interface. When configuring the router, use the **isdn switch-type** command followed by the corresponding code.

COUNTRY	SWITCH TYPE CODE
Australia	
Australian TS013 switches	**basic-ts013**
Europe	
Norway NET3 switches (phase 1)	**basic-nwnet3**
NET3 ISDN switches (Germany, UK and others)	**basic-net3**
French VN2 ISDN switches	**vn2**
French VN3 ISDN switches	**vn3**
Japan	
Japanese NTT ISDN switches	**ntt**
North America	
AT&T basic rate switches	**basic-5ess**
NT DMS-100 basic rate switches	**basic-dms100**
National ISDN-1 switches	**basic-ni1**
New Zealand	
New Zealand Net3 switches	**basic-nznet3**

Appendix D) Defining ISDN Service Profile Identifiers

An ISDN service provider, usually a telephone company, can offer a variety of services. Many providers use service profile identifiers (SPIDs) to identify the device that is using the ISDN service, similar to the way that the telephone company uses a telephone number to identify your standard telephone service. If you use a service provider that requires SPIDs, the provider assigns your ISDN device one or more SPIDs when you first subscribe to the service. Providers use different numbering schemes, but a SPID is usually a seven-digit telephone number, plus some optional numbers. The provider also assigns your device one or two local directory numbers (LDNs), which function as the router telephone numbers. The LDN is the number that a remote router dials to make a call to the router.

Note SPIDs have significance only at the local-access ISDN interface. The remote router is assigned a SPID when the ISDN BRI services are ordered for that router.

Appendix E) Maximum Cable Lengths

Cable	Maximum Length
Ethernet	100 metres
ISDN S/T	10 metres
Telephone cable	152 metres